

# Investment Evaluation Summary (IES)



## Project Details:

<b>Project Name:</b>	Replace LV Fuses for Fuse Reach
<b>Project ID:</b>	00392
<b>Thread:</b>	Protection and Control
<b>CAPEX/OPEX:</b>	CAPEX
<b>Service Classification:</b>	Standard Control
<b>Scope Type:</b>	B
<b>Work Category Code:</b>	REOPC
<b>Work Category Description:</b>	Replace OH Switchgear
<b>Preferred Option Description:</b>	<p>Option 1: Proactive evaluation, repair/re-design of LV protection installations.</p> <p>Advantages: costs in completing this work are least.</p> <p>Disadvantages: does not address risks associated with protection mal-operation, which includes bushfire and public safety.</p>
<b>Preferred Option Estimate (Nominal Dollars):</b>	\$240,000

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
<b>Unit (\$)</b>	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774	\$774
<b>Volume</b>	31	31	31	31	31	31	31	31	31	31
<b>Estimate (\$)</b>	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000
<b>Total (\$)</b>	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000

## Governance:

<b>Project Initiator:</b>	Sperry Pinner	<b>Date:</b>	11/03/2015
<b>Thread Approved:</b>	David Ellis	<b>Date:</b>	02/11/2015
<b>Project Approver:</b>	David Ellis	<b>Date:</b>	02/11/2015

## Document Details:

<b>Version Number:</b>	1
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## Related Documents:

Description	URL
IES	<a href="http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Protection%20and%20Control/REOPC%20Replace%20LV%20Fuses%20for%20Fuse%20Reach.docx">http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Protection%20and%20Control/REOPC%20Replace%20LV%20Fuses%20for%20Fuse%20Reach.docx</a>
NPV	<a href="http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Protection%20and%20Control/NPV%20REOPC.xlsm">http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Protection%20and%20Control/NPV%20REOPC.xlsm</a>

# Section 1 (Gated Investment Step 1)

## 1. Background

Throughout TasNetworks' (TN) overhead network there are cases where LV fuses have been incorrectly sized, or where LV links are used instead of fusing. In both cases, this presents significant risk to TN and the general public. There are cases whereby the length of the LV circuit means that even with a fuse installed; the fault current may be insufficient for the fuse to operate.

Accordingly, TN has developed a "Fuse Reach" program to proactively identify and re-design the protection such that the LV circuit will be adequately protected.

### 1.1 Investment Need

Funding is required to resource engineering expertise to review historic designs on a case-by-case basis to ensure the protection is fit for purpose.

### 1.2 Customer Needs or Impact

TasNetworks continues to undertake a consumer engagement as part of business as usual and through the voice of the customer program. This engagement seeks in depth feedback on specific issues relating to:

- How it prices impact on its services;
- Current and future consumer energy use;
- Outage experiences (frequency and duration) and expectations;
- Communication expectations;
- STPIS expectations (reliability standards and incentive payments); and
- Increase understanding of the electricity industry and TasNetworks.

Consumers have identified safety, restoration of faults/emergencies and supply reliability as the highest performing services offered by TasNetworks.

Consumers also identified that into the future they believe that affordability, green, communicative, innovative, efficient and reliable services must be provided by TasNetworks.

This project specifically addresses the requirements of consumers in the areas of safety, restoration of faults/emergencies and supply reliability.

### 1.3 Regulatory Considerations

This project is required to achieve the following capital and operational expenditure objectives as described by the National Electricity Rules section 6.5.7(a). (4) maintain the safety of the distribution system through the supply of standard control services.

## 2. Project Objectives

To undertake specified CAPEX-based replacement of LV fuses for fuse reach.

## 3. Strategic Alignment

### 3.1 Business Objectives

Strategic and operational performance objectives relevant to this project are derived from TasNetworks 2014 Corporate Plan, approved by the board in 2014. This project is relevant to the following areas of the corporate plan:

- We understand our customers by making them central to all we do.
- We enable our people to deliver value.
- We care for our assets, delivering safe and reliable networks services while transforming our business.

### 3.2 Business Initiatives

The business initiatives that relate to this project are as follows:

- Safety of our people and the community, while reliably providing network services, is fundamental to the TasNetworks business and remains our immediate priority
- We care for our assets to ensure they deliver safe and reliable network services

The strategic key performance indicators that will be impacted through undertaking this project are as follows:

- Price for customers – lowest sustainable prices
- Zero harm – significant and reportable incidents
- Sustainable cost reduction – efficient operating and capital expenditure

## 4. Current Risk Evaluation

Do nothing is not an acceptable option to TN's risk appetite. The level of risk identified is such that a treatment plan is required to reduce the risks to a tolerable level, in line with TasNetworks' Risk Management Framework.

### 4.1 5x5 Risk Matrix

TasNetworks business risks are analysed utilising the 5x5 corporate risk matrix, as outlined in TasNetworks Risk Management Framework.

Relevant strategic business risk factors that apply are follows:

Risk Category	Risk	Likelihood	Consequence	Risk Rating
Customer	Outage effects on customer	Possible	Negligible	Low
Environment and Community	Environmental damage	Unlikely	Major	Medium
Financial	Penalties resulting from reliability events	Possible	Negligible	Low
Network Performance	Damage to plant and equipment	Unlikely	Negligible	Low
Regulatory Compliance	Penalties resulting from reliability events in the high/low density	Possible	Negligible	Low

	areas			
Reputation	Outage effects on customer	Unlikely	Moderate	Medium
Safety and People	Damage to personnel and/or the general public	Possible	Major	High

## Section 1 Approvals (Gated Investment Step 1)

<b>Project Initiator:</b>	Sperry Pinner	<b>Date:</b>	11/03/2015
<b>Line Manager:</b>		<b>Date:</b>	
<b>Manager (Network Projects) or Group/Business Manager (Non-network projects):</b>		<b>Date:</b>	
[Send this signed and endorsed summary to the Capital Works Program Coordinator.]			

<b>Actions</b>			
<b>CWP Project Manager commenced initiation:</b>		<b>Assigned CW Project Manager:</b>	
<b>PI notified project initiation commenced:</b>		<b>Actioned by:</b>	

## Section 2 (Gated Investment Step 2)

### 5. Preferred Option:

The preferred option is to proactively review and re-design LV circuit protection schemes as required, to manage the risk.

#### 5.1 Scope

Evaluate and repair/re-design substandard LV sites to ensure correct protection operation under fault conditions.

#### 5.2 Expected outcomes and benefits

Funding is required to resource engineering expertise to review historic designs on a case-by-case basis to ensure the protection is fit for purpose. Expected outcomes and benefits are:

- A reliable protection system is maintained so that protection can operate as designed; and
- Lowest possible cost is passed to the customer.

#### 5.3 Regulatory Test

Not applicable.

## 6. Options Analysis

### 6.1 Option Summary

Option description	
Option 0	<p>Option 0: Do nothing - repair substandard LV protection installations once they have failed.</p> <p>Advantages: costs in completing this work are least.</p> <p>Disadvantages: does not address risks associated with protection mal-operation, which includes bushfire and public safety.</p>
Option 1 (preferred)	<p>Option 1: Proactive evaluation, repair/re-design of LV protection installations.</p> <p>Advantages: costs in completing this work are least.</p> <p>Disadvantages: does not address risks associated with protection mal-operation, which includes bushfire and public safety.</p>

### 6.2 Summary of Drivers

Option	
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Option 0	Ensure LV protection will correctly operate - Does not address risk Minimum cost to the customer - Addresses
Option 1 (preferred)	Ensure LV protection will correctly operate - Addresses risk Minimum cost to the customer - Partially addresses

### 6.3 Summary of Costs

Option	Total Cost (\$)
Option 0	\$0
Option 1 (preferred)	\$240,000

### 6.4 Summary of Risk

This section outlines an overall residual asset risk level, for each of the options.

Option	Risk Assessment
Option 0	Medium
Option 1 (preferred)	Low

### 6.5 Economic analysis

Option	Description	NPV
Option 0	<p>Option 0: Do nothing - repair substandard LV protection installations once they have failed.</p> <p>Advantages: costs in completing this work are least.</p> <p>Disadvantages: does not address risks associated with protection mal-operation, which includes bushfire and public safety.</p>	\$0
Option 1 (preferred)	<p>Option 1: Proactive evaluation, repair/re-design of LV protection installations.</p> <p>Advantages: costs in completing this work are least.</p> <p>Disadvantages: does not address risks associated with protection mal-operation, which includes bushfire and public safety.</p>	-\$169,852

#### 6.5.1 Quantitative Risk Analysis

Not applicable.

#### 6.5.2 Benchmarking

Fusing strategies such as the one proposed are standard practice among distribution utilities and are employed to help in managing inherent safety risk.

#### 6.5.3 Expert findings



Not applicable.

#### **6.5.4 Assumptions**

All costs are in 2014/15 dollars.

## Section 2 Approvals (Gated Investment Step 2)

<b>Project Initiator:</b>	Sperry Pinner	<b>Date:</b>	11/03/2015
<b>Project Manager:</b>		<b>Date:</b>	

<b>Actions</b>			
<b>Submitted for CIRT review:</b>		<b>Actioned by:</b>	
<b>CIRT outcome:</b>			